

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



ASB599  
·A3U5

APHIS 81-29  
March 1978

# THE DISTRIBUTION OF DESIGNATED NOXIOUS WEEDS IN THE UNITED STATES

U.S. Department of Agriculture  
National Agricultural Library

MAR 31 2016

Received  
Acquisitions and Metadata Branch

Animal and Plant Health Inspection Service  
UNITED STATES DEPARTMENT OF AGRICULTURE

## ABSTRACT

The distribution is given for the 11 noxious weed species known to occur in the United States. There are extensive references to the specific locations and to diagnostic information. The species are:

*Commelina benghalensis* L.

*Hydrilla verticillata* (L.f.) Royle

*Ischaemum rugosum* Salisb.

*Monochoria hastata* (L.) Solms

*Oryza rufipogon* Griff.

*Striga asiatica* (L.) Ktze.

*Eichhornia azurea* (Sw.) Kunth

*Imperata brasiliensis* Trin.

*Mikania micrantha* Kunth

*Monochoria vaginalis* (Burm.f.) Presl

*Rottboellia exaltata* L.f.

# The Distribution of Designated Noxious Weeds in the United States

Mark Busch<sup>1</sup>

## INTRODUCTION

The Federal Noxious Weed Act of 1974 granted the Secretary of Agriculture the authority to designate certain weeds 'of foreign origin . . . new to or not widely prevalent in the United States' as noxious (1). Accordingly, 25 species and 1 genus of weeds have been so designated (2). Of these, 11 have been reported within the United States. The records of these occurrences are summarized and presented here with an extensive bibliography.

This information is based on collection reports and other references found in the literature, as well as information supplied by State regulatory officials. General statements regarding distribution of a species are treated as secondary to reports of collections. Despite extensive research, this report is not definitive, and should be subject to additions and revisions. Nomenclature follows Terrell, 1977 (38).

Table 1 is a chart summarizing distribution by State. Appendix 1 lists records of importations of species now declared to be noxious weeds.

Table 1.—Noxious Weed Distribution

	PARASITIC <i>Striga asiatica</i>	AQUATIC <i>Eichhornia azurea</i>	<i>Hydrilla verticillata</i>	<i>Monochoria hastata</i>	<i>Monochoria vaginalis</i>	TERRESTRIAL <i>Commelina benghalensis</i>	<i>Imperata brasiliensis</i>	<i>Ischaemum rugosum</i>	<i>Mikania micrantha</i>	<i>Oryza rufipogon</i>	<i>Rottboellia exaltata</i>
Continental											
United States											
Arkansas . . . . .					X					X	
California . . . . .			X		X					X	
Florida . . . . .			X				X				X
Georgia . . . . .			X								
Iowa . . . . .			X								
Louisiana . . . . .			X							X	X
Maryland . . . . .								X			
Mississippi . . . . .										X	
Missouri . . . . .										X	
North Carolina . . . . .	X										
South Carolina . . . . .	X										
Texas . . . . .		X	X							X	
Noncontinental											
United States											
Hawaii . . . . .				X	X	X					
Puerto Rico . . . . .							X		X		

<sup>1</sup>Plant Protection & Quarantine; National Program Planning Staff; Plant Importation and Technical Support Staff.

A diagnostic description of this species can be found in Reed (31), describing both plant and seed (seed illustrated). An illustration and description are also available in Holm et al. (22).

*Hawaii*.—*C. benghalensis* was reported in Hawaii by Neal, 1965 (27) as a weed and forage plant.

*Eichhornia azurea*

anchored waterhyacinth  
creeping waterhyacinth

**Synonyms:** *Pontederia azurea* Sw., Prodr. 57 (1788)

*Pontederia aquatica* Vell., Fl. Flum. 144 (1825)

*Piaropus azureus* (Sw.) Raf., Fl. Tell. 2:81 (1837)

*Eichornia aquatica* (Vell.) Schlecht., Abh. Nat. Ges. Halle 6:177 (1862)

A key to the Pontederiaceae with a description of *E. azurea* can be found in Woodson and Schery, 1944 (40). The plant is illustrated in Bristow et al. (8) and in Graf (14).

*Texas*.—*E. azurea* was collected from the shores of Lake Corpus Christi, San Patricio County, in 1955 and reported by Shinnars, 1962 (32).

*Hydrilla verticillata*

hydrilla

**Synonyms:** *Serpicula verticillata* L.f.

*Udora verticillata* Spreng

*Udora hithuanica* Bess.

*Hydora lithuanica* Rchb.

*Hydrilla ovalifolia* L.C. Rich

*Hydrilla dentata* Caspary

Reed (31) describes and illustrates the species; however, Blackburn et al. (6) or Burkhalter et al. (7) should be consulted to prevent confusion with similarly appearing species (e.g. *Elodea canadensis* and *Egeria densa*).

*Alabama*.—Hydrilla has been reported in Alabama by Blackburn et al. (6). However, this probably refers to the infestation of Lake Seminole, included in this report under Georgia. Other possible infestations are currently under investigation.

*California*.—As of July 1977, hydrilla has been reported in five California counties. It was first detected in Yuba County in November 1976. The plants were found in Ellis Lake in the city of Marysville (16). Subsequently, infestations were found in San Diego County (Lake Murray Reservoir) (17), Imperial County (All American Canal) (18), Santa Barbara County (a fish pond in Santa Barbara) (19), and Riverside County (a private pond in the city of Coachella) (20).

*Florida*.—Hydrilla was introduced to Florida in 1958 by aquatic plant dealers. Initially misidentified, hydrilla was confused with *Elodea* and *Egeria*. When correctly identified in 1967, hydrilla was already a weed of major significance (6). In 1976, infestations in Florida totaled 280,000 hectares. Forty of sixty-seven counties are reported to have infestations, and are listed here:

Alachua	Glades	Leon	Pinellas
Brevard	Hardee	Levy	Polk
Broward	Hendry	Manatee	Putnam
Charlotte	Hernando	Marion	St. Johns
Citrus	Highlands	Martin	St. Lucie
Clay	Hillsborough	Okeechobee	Sarasota
Collier	Indian River	Orange	Seminole
Dade	Jefferson	Osceola	Sumter
DeSoto	Lake	Palm Beach	Volusia
Duval	Lee	Pasco	Wakulla

*Georgia*.—Three counties in Georgia have been reported infested with hydrilla. Radium Springs is the site of one infestation (near Albany, Dougherty County). The counties of Decatur and Seminole also have infestations of hydrilla. Lake Seminole, which extends into the latter two counties, supports an infestation estimated at 400 to 480 hectares (13).

*Iowa*.—In 1972, hydrilla was identified from a private lake in Scott County, Iowa, by Dr. Robert Lazor. Herbicidal treatments were instituted, and this infestation is thought to be eradicated (24).

*Louisiana*.—The first collection of hydrilla in Louisiana was made at Spanish Lake in Iberia Parish in July 1973 (35). Six additional parishes are now reported to be infested, primarily along the intracoastal waterway system. Included are Calcasieu, Natchitoches, St. Mary, Terrebonne, Lafourche, and Jefferson Parishes (25).

*Texas*.—Hydrilla was first reported in Texas in 1975, in the San Marcos River in Hays County (12). In 1977, 1,160 hectares of hydrilla were reported in 10 counties in Texas. An increase to 3,350 hectares is projected for 1978. The bodies of water affected include Lake Livingston, Lake Conroe, Toledo Bend Lake, Lake Raven, the San Marcos River, and Cameron County Water District #2. The following counties are infested (15):

Cameron	Sabine
Hays	San Jacinto
Montgomery	Shelby
Newton	Trinity
Polk	Walker

*Imperata brasiliensis*

silver-plume  
Brazilian blady-grass

**Synonyms:** *Imperata brasiliensis* var. *mexicana* Rupr., Bull. Acad. Sci. Brux. 9(2):245 (1842)  
Sci. Brux. 9(2):245 (1842)

*Imperata arundinacea* var. *americana* Anderss., Ofv.  
Svensk. Vet. Akad. Forh. 12:160 (1855)

This species is described by Reed (31) (seed illustrated) and also by Hitchcock (21) (plant illustrated).

*Florida*.—*I. brasiliensis* was reported in southern Florida by Chapman in 1897 (10) and by Small in 1933 (33).

*Puerto Rico*.—Otero et al. (28) listed this species in their catalog of Puerto Rican plants in 1945.

*Ischaemum rugosum*

saromacca-grass

*I. rugosum* is described by Reed (31) (seed illustrated) and by Holm et al. (22) (plant and seed illustrated).

*Maryland*.—This species was collected by Reed (30) on chrome ore piles in Canton (Baltimore), Maryland, in November, 1958. No information has been found concerning the survival or spread of this infestation.

*Mikania micrantha*

mile-a-minute

**Synonyms:** *Mikania congesta* DC., Prodr. 5:197 (1836)

*Mikania micrantha* var. *congesta* (DC.) Robins., Contr. Gray herb. 64:43 (1922)



*M. micrantha* is described by Holm et al. (22). Further description and an illustration are provided by Lambert, 1973 (23).

*Puerto Rico*.—*M. micrantha* was reported as *M. congesta* from Puerto Rico growing in marshes, thickets, and on river banks at lower elevations by Britton and Wilson, 1925 (9).

*Monochoria hastata*

**monochoria**

**Synonyms:** *Monochoria hastifolia* Presl

A description of the genus and a key to the species *M. hastata* and *M. vaginalis* appears in Degener, 1960 (11). The species is also described in Holm et al. (22).

*Hawaii*.—*M. hastata* is reported as a cultivated and naturalized species of Hawaii by Degener (11). Neal (27) also records the presence of this species.

*Monochoria vaginalis*

**pickerel weed  
monochoria**

**Synonyms:** *Pontederia vaginalis* Burm., Fl. Ind. 80 (1768)

*Pontederia pauciflora* Bl., Enum. Pl. Jov. 1:32 (1827)

*Pontederia plantaginea* Roxb., Fl. Ind. ed. 2. 2:123 (1832)

*Monochoria pauciflora* Kunth, Enum. 4:135 (1843)

*Monochoria vaginalis* var. *pauciflora* Merr., Enum. Philipp. Pl. 1:201 (1922)

*M. vaginalis* is described by Reed (31) (seed illustrated). Further description and illustration are found in Degener, 1960 (11) and in Holm et al. (22).

*California*.—This species was identified in Butte County, California, in 1954 (39). There has been no apparent spread of this infestation.

*Hawaii*.—*M. vaginalis* was reported as a naturalized species by Degener (11), having been discovered in the 1930's by that author. Neal (27) also reports the occurrence of this species in Hawaii.

*Oryza rufipogon*

**red rice**

**Synonyms:** *Oryza fatua* Koen. ex Trin., Mem. Acad. Sci. Petersb. ser.6 5(2):177 (1893)

*Oryza formosana* Masamune et Suzuki, Trans. Nat. Hist. Soc. Formosa 25:320 (1935)

*Oryza glumaepatula* Steud., Syn. Pl. Glum. 1:3 (1854)

*Oryza paraguayensis* Wedd. ex Franch., Bull. Soc. Hist. Nat. Autun 8:365 (1895)

*Oryza perennis* Moench var. *cubensis* Sampath, Bot. Mag. Tokyo 74:269 (1961)

*Oryza sativa* Linn. var. *abuensis* Watt, Dict. Econ. Prod. Ind. 5:505 (1891)

*Oryza sativa* Linn. var. *bengalensis* Watt, Dict. Econ. Prod. Ind. 5:504 (1891)

*Oryza sativa* Linn. var. *coarctata* Watt, Dict. Econ. Prod. Ind. 5:504 (1891)

*Oryza sativa* Linn. var. *fatua* Prain, Beng. Pl. 2:1184 (1903)

*Oryza sativa* Linn. var. *rufipogon* (Griff.) Watt, Dict. Econ. Prod. Ind. 5:504 (1891)

A key to the genus is given by Tateoka (37) and this species is described by Reed (31) (seed illustrated). Illustrations also appear in Agriculture Handbook 292 (34), which reports red rice as a serious weed in all rice-producing states. Included are Arkansas, California, Louisiana, Mississippi, Missouri, and Texas.



*Rottboellia exaltata*

itchgrass  
guinea-fowl grass

**Synonyms:** *Manisuris exaltata* Kuntze, Rev. Gen. Pl. 2:779 (1891)  
*Stegosia exaltata* Nash, N. Amer. Fl. 17:84 (1909)

*R. exaltata* is described by Reed (31) (seed illustrated). Further description and an illustration can be found in Holm et al. (22).

*Florida*.—Small (33) recorded this species as *M. exaltata* in 1933 in south Florida. Miami is cited as the point of introduction by Hitchcock (21). *R. exaltata* was collected in Homestead, growing on dry coral in vacant lots by Pohl (29) in 1957 and 1962.

*Louisiana*.—*R. exaltata* is reported in seven parishes in Louisiana by Millhollon (26). The infestations occur in the parishes of Lafourche, Terrebonne, St. Martin, Lafayette, Iberia, Pointe Coupee, and Assumption.

*Striga asiatica*

witchweed

**Synonyms:** *Striga lutea* Lour.

This species is described by Tarr, 1962 (36). An illustration is found in USDA PA-331 (4). Holm et al. also describe and illustrate the species.

*North and South Carolina*.—Witchweed was found in North Carolina in 1956, and subsequently in South Carolina the same year (5). An extensive quarantine and eradication program was undertaken and is still in effect. The following counties in each State were reported to be infested with witchweed by the USDA in 1977 (3):

*North Carolina:*

Bladen	Duplin	Lenoir	Robeson
Brunswick	Greene	Moore	Sampson
Columbus	Harnett	Onslow	Scotland
Craven	Johnston	Pender	Wayne
Cumberland	Jones	Richmond	Wilson

*South Carolina:*

Chesterfield	Darlington
Dillon	Florence
Horry	Marion
Marlboro	

## APPENDIX 1

The following information has been extracted from the Plant Introduction files of the USDA Germplasm Resources Laboratory in Beltsville, Maryland. Listed are all recorded introductions of weed species which were declared noxious in 1976. The dates and destinations are given, and the information arranged alphabetically by genus and species. These introductions were made for germplasm research, and details concerning establishment, if any, are not known. Repeated introductions to the same destination in the same year are listed only once.

<i>Date</i>	<i>Destination</i>
<i>Avena ludoviciana</i>	
1916	UNKNOWN
1923	(USDA Cerealists)
1925	(USDA Forage Crop Specialists)
1934	UNKNOWN
1945	UNKNOWN
1949	UNKNOWN
1965	Beltsville, Maryland

<i>Carthamus oxyacantha</i>	
1956	Pullman, Washington
1958	Beltsville, Maryland
1959	Beltsville, Maryland
1961	Beltsville, Maryland
1965	Davis, California
1967	Beltsville, Maryland
1969	Davis, California
1970	Pullman, Washington
1975	Davis, California
1975 (Hybrids)	Davis, California

<i>Digitaria scalarum</i>	
1948	UNKNOWN
1955	Beltsville, Maryland
1964	Experiment, Georgia
	Gainesville, Florida
	Rio Pedras, Puerto Rico
1967	Experiment, Georgia
1971	Experiment, Georgia
	Gainesville, Florida
	Beltsville, Maryland
1975 (species not identified)	Ft. Pierce, Florida
1976 (species not identified)	Experiment, Georgia

<i>Date</i>	<i>Destination</i>
<i>Imperata brasiliensis</i>	
1952	Beltsville, Maryland
1962	Experiment, Georgia
1963	(USDA, Tobacco and Sugar Crops)
1965	Beltsville, Maryland
1975	Experiment, Georgia
<i>Ischaemum rugosum</i>	
1959	UNKNOWN
1961	UNKNOWN
1963	Stillwater, Oklahoma
<i>Leptochloa chinensis</i>	
1925	UNKNOWN
<i>Mikania</i> (species not identified)	
1913	UNKNOWN
1917	UNKNOWN
1919	UNKNOWN
1936	UNKNOWN
<i>Oryza punctata</i>	
1906	UNKNOWN
1907	UNKNOWN
1958	UNKNOWN
<i>Oryza rufipogon</i>	
1958	UNKNOWN
1970	Beltsville, Maryland

<i>Date</i>	<i>Destination</i>
<i>Rottboellia exaltata</i>	
1915	UNKNOWN
1919	UNKNOWN
1920	UNKNOWN
1922	UNKNOWN
1926	UNKNOWN
1928	UNKNOWN
1948	UNKNOWN
1949	Beltsville, Maryland
1953	UNKNOWN
1956	UNKNOWN
1970	Beltsville, Maryland
1975	Experiment, Georgia
1976	Experiment, Georgia

*Striga masuria*

1919	UNKNOWN
------	---------

## REFERENCES

- (1) Anonymous.  
1974. Federal Noxious Weed Act of 1974, Public Law 93-629.
- (2) \_\_\_\_\_  
1976. Noxious Weed Regulations. Code of Federal Regulations Title 7, Chapter 3, Part 360.
- (3) \_\_\_\_\_  
1977. Domestic Quarantine Notices, Code of Federal Regulations Title 7, Chapter 3, Part 301.
- (4) \_\_\_\_\_  
1975. Watch Out for Witchweed. USDA PA-331.
- (5) \_\_\_\_\_  
1957. Witchweed. USDA-ARS Special Report 22-41.
- (6) Blackburn, R. D., Weldon, L. W., Yeo, R. R., and Taylor, T. M.  
1968. Identification and Distribution of Certain Similar-Appearing Submersed Aquatic Weeds in Florida. Hyacinth Control Journal 8(1):17-21.
- (7) Burkhalter, A. P., Curtis, L. M., Lazor, R. L., and others.  
1972. Aquatic Weed Identification and Control Manual. pp. 67-69.
- (8) Bristow, J. M., Cardenas, J., Fullerton, T. M., and Sierra, J. F.  
1973. Malezas Aquaticas—Aquatic Weeds. p. 77.
- (9) Britton, N. L., and Wilson, P.  
1925. New York Academy of Science Scientific Survey of Puerto Rico and the Virgin Islands 6(2):293.
- (10) Chapman, A. W.  
1897. Flora of the Southern United States, 3rd edition. p. 595.
- (11) Degener, O., and Degener, I.  
1960. Flora Hawaiiensis 6: (Family 63).
- (12) Flock, J. M.  
1975. Additions and Corrections to the Flora of Texas. SIDA 6(2):114.
- (13) Gholson, A. K. (Resource Manager, Lake Seminole, Georgia).  
1977. Personal correspondence.
- (14) Graf, A. B.  
1959. Exotica 2. p. 885.
- (15) Guerra, L. V. (Director, Noxious Vegetation Control Program, Texas).  
1977. Personal correspondence.
- (16) Hawkins, L.  
1976. Cooperative Plant Pest Report (CPPR) for California. Nov. 19, 1976.
- (17) \_\_\_\_\_  
1977. CPPR for California. June 3, 1977.
- (18) \_\_\_\_\_  
1977. CPPR for California. July 8, 1977.
- (19) \_\_\_\_\_  
1977. CPPR for California. July 15, 1977.
- (20) \_\_\_\_\_  
1977. CPPR for California. July 22, 1977.
- (21) Hitchcock, A. S.  
1935. Manual of the Grasses of the United States, USDA Miscellaneous Publication No. 200.
- (22) Holm, L. G., Plucknett, D. L., Pancho, J. V., and Herberger, J. P.  
1977. World's Worst Weeds.
- (23) Lambert, M.  
1973. Weed Control in the South Pacific, South Pacific Commission Handbook No. 10, p. 39.
- (24) Lazor, R. L. (Administrator, Bureau of Aquatic Plant Research and Control, Florida)  
1977. Personal correspondence.
- (25) Lee, D. (Coordinator, Aquatic Plant Research and Control, Louisiana).  
1977. Personal correspondence.
- (26) Millhollon, R. (USDA-ARS Research Agronomist)  
1977. Personal communication.
- (27) Neal, M. C.  
1965. In Gardens of Hawaii.
- (28) Otero, J. I., Toro, R. A., and DeOtero, L. P.  
1945. Catalogo de los Nombres Vulgares y Cientificos de Algunas Plantas Puertorriquenas, p. 21.
- (29) Pohl, R. W.  
1963. Phytogeographic Notes on *Rottboellia*, *Paspalum*, and *Miscanthus* (Gramineae). Rhodora 65(762): 146-148.

- (30) Reed, C. F.  
1964. A flora of the chrome and manganese ore piles at Canton, in the Port of Baltimore, Maryland, and at Newport News, Virginia, with descriptions of genera and species new to the flora of the eastern United States. *Phytologia* 10(5):361.
- (31) \_\_\_\_\_  
1977. Economically Important Foreign Weeds, Agriculture Handbook No. 498.
- (32) Shinnars, L. H.  
1962. *Eichhornia azurea* (Pontederiaceae) in the Texas Coastal Bend: New to the United States. *SIDA* 1(2): 99.
- (33) Small, J. K.  
1933. Manual of the Southeastern Flora. pp. 39, 41.
- (34) Smith, R. J., Jr., and Shaw, W. C.  
1966. Weeds and their control in rice production, Agriculture Handbook No. 292. pp. 50-51.
- (35) Solymosy, S. L.  
1974. *Hydrilla verticillata* (Hydrocharitaceae): New to Louisiana. *SIDA* 5(5):354.
- (36) Tarr, S. A. J.  
1962. Diseases of Sorghum, Sudan Grass, and Broom Corn. pp. 285-286.
- (37) Tateoka, T.  
1963. Taxonomic Studies of *Oryza* III. Key to the species and Their Enumeration. *Botanical Magazine Tokyo* 76: 165-173.
- (38) Terrell, E. E.  
1977. A Checklist of Names for 3000 Vascular Plants of Economic Importance, Agriculture Handbook No. 505.
- (39) Tucker, J. M., and McCaskill, B. J.  
1955. *Monochoria vaginalis* in California. *Madrono* 13:112.
- (40) Woodson, R. E., Jr., and Schery, R. W.  
1944. Flora of Panama (Pontederiaceae). *Annals of the Missouri Botanical Garden* 31: 555-559.